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Department of Energy
Richland Operations Office
P.O. Box 550
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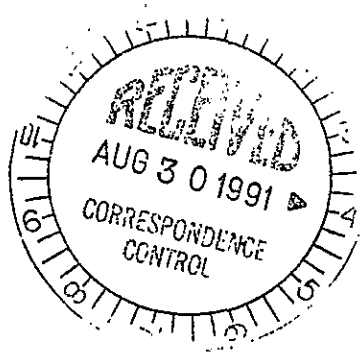
AUG 28 1991



91-OB-030

Mr. Timothy L. Nord
Hanford Project Manager
State of Washington
Department of Ecology
Mail Stop PV-11
Olympia, Washington 98504-8711

Dear Mr. Nord:

TANK FARM SURVEILLANCE QUALITY ASSURANCE

Reference: Letter, Tim Nord, Ecology, to S. H. Wisness, RL, "Tank Surveillance Quality Assurance," dated July 24, 1991.

The DOE Field Office, Richland (RL) has enclosed a response to the three concerns identified in your July 24, 1991 letter regarding tank farm surveillance activities. One concern focused on the timely repair of out of service tank level instrumentation. The Department of Energy Field Office, Richland has recognized this issue and is taking steps to make improvements to the existing program. Improvements to tank farm instrumentation are an integral part of the Tank Farm Upgrade Program Plan, WHC-EP-0392 (previously submitted to Ecology), with both interim and long term solutions under evaluation. WHC-EP-0392 is enclosed for informational purposes.

Westinghouse Hanford Company (WHC) has indicated that presently there are 32 tanks with surface monitoring devices that require some degree of repair. Food Instrument Corporation (FIC) gauges for 15 of the 32 do not relay their electrical signals to the Computer Automated Surveillance System (CASS). However, the FIC gauges do provide local tank level information. Backup monitoring devices are being used to monitor surface levels in 9 of the 32 tanks. The remaining eight tanks surface level monitoring devices are out of service with no backup capabilities. RL has determined that the out of service condition for surface level devices for these eight tanks is a reportable event under DOE requirements for reporting of off-normal events. We have directed WHC to issue an off-normal report concerning this issue.

Further questions or comments regarding this information can be addressed to me on (509) 376-6798 or Johnnie E. Newson, Tank Farm Project Office on (509) 373-5951.

Sincerely,

S. H. Wisness
Hanford Project Manager

Enclosure

cc w/encl:
Paul Day, EPA
Roger Stanley, Ecology
Dave Nylander, Ecology
Don Provost, Ecology
Steve Marchetti, WHC
Tim Veneziano, WHC

Tank Farm Surveillance Quality Assurance

Concern 1):
Some tank levels cannot be checked because instruments are out of service, in some cases almost two years. There is concern that the tank may either leak or possibly have liquid intrusions or additions without knowledge or verification. The tanks in question are required to be checked either daily, monthly or quarterly. For example, Tank 104-TX is required to be monitored quarterly, but no readings have been taken since the equipment was reported as failed in October of 1989. USDOE must inform Ecology about all double & single-shell tank liquid level monitoring. This must include operational requirements, status of monitoring equipment, and the date of the last reading.

Response:
Tank levels are monitored using several different methods. Some tanks have more than one method available which provides backup capabilities to the primary device. These methods include the Food Instrument Corporation (FIC) gauges, manual level tapes, and liquid observation wells (LOWs). Currently surface levels are monitored in 185 (with the of the items discussed below) separate tanks (includes eight catch tanks) at varying frequencies ranging from daily to quarterly depending on tank status.

Presently there are 32 of 185 tanks with monitoring devices requiring some degree of repair. WHC has been requested to provide RL a schedule by September 17, 1991 for repair of surface level monitoring devices in the above mentioned 32 tanks.

Fifteen of the 32 monitoring devices are FIC gauges that are fully functional and provide local tank level information. The only deficiency with these 15 FICs is the electrical signal from each FIC sending duplicate level information to a computer data base (CASS) is in need of repair. Another five of the 32 tanks are monitored daily with a backup manual tape device. These five will continue to be monitored manually since technical problems with the FIC prevents reliable level readings. Replacement technology for the FIC gauges is being pursued. New technology devices are expected to provide a non-intrusive instrument to replace the FIC which makes contact with the waste surface level. Non-intrusive devices (e.g. radar gauges) should also enhance installation of and maintenance activities on the level devices. Four of the other 32 tanks with devices needing repair have LOWs which provide backup information on tank level.

This leaves eight tanks with level devices out of service with no backup system or field readings being taken, see Table 1. Replacement spare parts for the existing FIC gauges are no longer available from the original manufacturer. An alternate supplier had to be located and only recently has been able to supply the needed parts to repair the out of service devices. There are work packages in place to repair the devices in each of these eight tanks. All but two of these eight tanks have been classified as interim stabilized. These tanks (interim stabilized) consist largely of solids. The two tanks that are not interim stabilized have surface level devices that have been out of service four months or less. RL has determined that this out of service condition for surface level device for these eight tanks is a

reportable event under DOE requirements for reporting of off-normal events. We have directed WHC to issue an off-normal report concerning this issue.

Tank Farms has a program plan in place with provisions for a multitude of tank farm upgrades. Included are two projects W-199 and W-200 for Tank Farm Instrumentation East and West to replace the recognized faulty level devices. Once implemented the plan will enable all tank surface levels to be recorded as required.

Concern 2):
There is a shortage of Certified Operators in the tank farms, leaving non-certified operators to take readings and measurements. This casts serious suspicion on the quality of the data produced.

Response: It is not the policy of WHC to allow non-certified operators to obtain readings and measurements at the tank farms. There are currently 124 operators at tank farms and about 100 operators have completed certification for tank farm "routines" and/or surveillance liquid level monitoring. Data is gathered by certified operators, reviewed by a manager, and again reviewed/analyzed by Tank Farm Surveillance Analysis or engineering personnel for accuracy and completeness.

Concern 3):
According to photographs, Hexone Tanks 141-S and 142-S contain approximately 20 to 30 gallons in each tank, yet the computer consistently indicates they contain 108 and 77 gallons respectively.

Response: Waste has been removed from the 141-S and 142-S hexone tanks through pumping and numerous flushes. Photographs of the interiors of these 22,750 gallon tanks show that the remaining materials are solid tar-like materials with some shallow pools of liquid. Based on engineering judgement, the total volume of liquid, as estimated from photographs, is 5-15 gallons in each tank. The surface levels in the two tanks are monitored with nitrogen-purged weight factor bubbler dip tubes that are spaced 2-3 inches off the bottoms of the tanks (equivalent to 65-121 gallons) to avoid plugage by tar residues. The weight factor instruments are not capable of detecting levels below the ends of the tubes. When the level drops to or below the dip tube ends, the monitoring computer continues to display a gallon volume equivalent to the dip tube level (65-121 gallons). Since the volume in the tanks has been reduced to a level below the instruments' detection capability, it is proposed to discontinue operation of the weight factor system.

WHC and RL are preparing a letter to be submitted to Ecology at a later date that documents the decision to discontinue daily liquid level readings on these tanks.

TABLE 1

TANK	DATE OF LAST FIC READING	STATUS	FREQUENCY
104-BX	2/25/91	No reading taken since last FIC reading Work package 2E-91-00321	Weekly
107-BX	3/3/91	No reading taken since last FIC reading Work package 2E-91-00359	Weekly
109-BX	12/12/90	No reading taken since last FIC reading Work package 2E-91-00388	Monthly
107-C*	5/15/91	No reading taken since last FIC reading Work package 2E-91-00660	Weekly
107-T*	4/14/91	No reading taken since last FIC reading Work package 2W-91-00807	Weekly
112-T	3/16/90	No reading taken since last FIC reading Work package Generic repair "T" FIC's package 2W-91-00071	Quarterly
104-TX	10/2/89	No reading taken since last FIC reading Work package 2W-91-00071	Quarterly
116-TX	1/7/91	No reading taken since last manual tape reading Work package 2W-89-00395	Quarterly

*Not interim stabilized

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
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Subject: TANK FARM SURVEILLANCE QUALITY ASSURANCE

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*Received copy of letter/attachment from RL.